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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/759,098

01/20/2004

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12/02/2005

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EXAMINER

WILLIAMS, JOSEPH L

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 12/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/759,098 | Applicant(s) SEON ET AL. | |
| | Examiner Joseph L. Williams | Art Unit 2879 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>7/6/05 & 9/26/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The disclosure is objected to because of the following informalities: On page 9, line 11, "46" should be "47".

Appropriate correction is required.

Claim Objections

3. Claim 9 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. A claim cannot refer back to itself.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 9 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 recites the limitation "said gate" in line one (1) of the claim. There is no antecedent basis for this limitation in the claim.

Claim 12 recites the limitation "said intermediate material" in line one (1) of the claim. There is no antecedent basis for this limitation in the claim.

Please note that for the purpose of this Action, the Examiner has assumed that claim 9 was intended to be dependent upon claim 8, and claim 12 was intended to be dependent upon claim 11.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 8, 9, 11, 12, 14-17, 19-22, 24, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim (US 6,249,083 B1).

Regarding claim 1, Kim ('083) teaches in figure 5 a field emission display (50) comprising a first substrate (52); an electron emission assembly (no number) arranged

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on the first substrate; a second substrate (51) arranged a predetermined distance from the first substrate, the first and second substrates forming a vacuum space (54t); an illumination assembly (no number) arranged on the second substrate, the illumination assembly being illuminated by electrons emitted from the electron emission assembly; and a mesh grid (54) arranged above the electron emission assembly.

Regarding claim 2, Kim ('083) teaches in column 5, lines 20-55 the mesh grid comprises a metal.

Regarding claim 8, Kim ('083) teaches the electron assembly comprises a cathode (52a) and a gate (59) and an electron emission source (56).

Regarding claim 9, Kim ('083) teaches the gate is arranged on an upper side of the cathode.

Regarding claim 11, Kim ('083) teaches an intermediate material (54e) is arranged between the electron emission assembly and the mesh grid.

Regarding claim 12, Kim ('083) teaches the intermediate material comprises an insulating material.

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Regarding claim 14, Kim ('083) teaches a focusing electrode (54f) arranged in the mesh grid.

Regarding claim 15, Kim ('083) teaches a field emission display device (50), comprising: a first substrate (52), an electron emission assembly (no number) arranged on the first substrate; a second substrate (51) arranged a predetermined distance from the first substrate, the first and second substrates forming a vacuum assembly (54t), an illumination assembly (no number) arranged on the second substrate, the illumination assembly being illuminated by electrons emitted from the electron emission assembly; and a mesh grid (54d) arranged above the electron emission assembly; wherein the mesh grid is bonded to the electron emission assembly by a frit (see column 5, lines 43-55).

Regarding claim 16, Kim ('083) teaches a method of manufacturing a field emission display, the method comprising: providing a first substrate; arranging an electron emission assembly on the first substrate; arranging a second substrate a predetermined distance from the first substrate to form a vacuum space with the first and second substrates; arranging an illumination assembly on the second substrate, and illuminating the illumination assembly with electrons emitted from the electron emission assembly; and arranging a mesh grid above the electron emission assembly.

Regarding claim 17, Kim ('083) teaches forming the mesh grid of a metal.

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Regarding claim 19, Kim ('083) teaches forming a cathode and a gate and an electron emission source in the electron emission assembly.

Regarding claim 20, Kim ('083) teaches forming the gate on one of an upper and lower side of the cathode.

Regarding claim 21, Kim ('083) teaches forming an intermediate material between the electron emission assembly and the mesh grid.

Regarding claim 22, Kim ('083) teaches forming the intermediate material of an insulating material.

Regarding claim 24, Kim ('083) teaches forming a focusing electrode on the mesh grid.

Regarding claim 25, Kim ('083) teaches a method of manufacturing a field emission display device, the method comprising: providing a first substrate; arranging an electron emission assembly on the first substrate; arranging a second substrate a predetermined distance from the first substrate to form a vacuum assembly with the first and second substrates; arranging an illumination assembly on the second substrate and illuminating the illumination assembly with electrons emitted from the electron emission

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assembly, arranging a mesh grid above the electron emission assembly; and bonding the mesh grid to the electron emission assembly with a frit.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-7, 10, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US 6,249,083), of record, in view of Higashinakagawa et al. (US 4,827,178).

Regarding claim 3, Kim ('083) teaches all of the claimed limitations except for the mesh grid comprising one of stainless steel, invar, and an iron-nickel alloy.

Further regarding claim 3, Higashinakagawa ('178) discloses, within the same field of endeavor, a cathode ray tube comprised of, in part, a shadow mask (mesh grid) comprised of an iron nickel alloy for the purpose of providing a clear, plane and easily seeable image.

Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the material of the mesh grid of Higashinakagawa for the mesh grid in the display of Kim for the purpose of providing clear, plane, and easily seeable images.

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Regarding claim 4, Higashinakagawa ('178) discloses the iron-nickel alloy comprises 3 to 15% by weight of Cr, which includes the claimed range.

The reason for combining is the same as for claim 3 above.

Regarding claim 5, Higashinakagawa ('178) discloses the iron-nickel alloy comprises 30 to 45% by weight of Ni, which includes the claimed range.

The reason for combining is the same as for claim 3 above.

Regarding claim 6, Higashinakagawa ('178) discloses the iron-nickel alloy comprises 0.2 to 4% by weight of Mn, to 1% of C, and 0 to 1% of Si, which includes the claimed ranges.

The reason for combining is the same as for claim 3 above.

Regarding claim 10, Kim ('083) teaches the gate is arranged on the upper side of cathode, but not on the lower side. However, the location of the gate electrode does not appear to be a critical feature (either the upper or lower side of the cathode), and thus is an obvious choice in design.

Regarding claim 18, Kim ('083) teaches all of the claimed limitations except for the mesh grid comprising one of stainless steel, invar, and an iron-nickel alloy.

Further regarding claim 18, Higashinakagawa ('178) discloses, within the same filed of endeavor, a cathode ray tube comprised of, in part, a shadow mask (mesh grid)

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comprised of an iron nickel alloy for the purpose of providing a clear, plane and easily seeable image.

Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the material of the mesh grid of Higashinakagawa for the mesh grid in the display of Kim for the purpose of providing clear, plane, and easily seeable images.

Claims 13 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US 6,249,083), of record, in view of Kamide et al. (US 6,917,155).

Regarding claims 13 and 23, Kim ('083) teaches all of the claimed limitations except for the intermediate material being made of a resistive material.

Further regarding claims 13 and 23, Kamide ('155) teaches, within the same field of endeavor, the use of a resistance layer in a field emitter for the purpose of decreasing the consumption power of the display.

Hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the resistive layer of Kamide in place of the insulating layer of Kim for the purpose of decreasing the consumption power of the display.

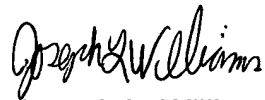
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph L. Williams whose telephone number is (571) 272-2465. The examiner can normally be reached on M-F (6:30 AM-3:00 PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Joseph L. Williams
Primary Examiner
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